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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 704,641	11 01 2000	Maximilian Albert Biberger	SSI-00700	4503

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EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 04 03 2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/704,641

Applicant(s)

BIBERGER ET AL

Examiner

Ram N Kackar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 5-7
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicant's election without traverse of claims 1-25, 29 and 30 in Paper No. 9 is acknowledged.

Information Disclosure Statement

1. The information disclosure statement filed 4/23/2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Information Disclosure Statement Paper No. 4 and the documents are missing. In IDS Paper No. 5 foreign publication and other documents are also missing. Missing documents are not considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-25, 29 and 30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the applicant has not disclosed the structural requirements for high pressure, seals and fittings and fixturing for work piece holding needed for connecting the super critical module to transfer module.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, 13, 15-17, 19-25, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US Patent 6110232) in view of Fujikawa et al (US Patent 5979306). With regards to claim 1, Chen et al discloses a transfer module (Fig 1-20) having an entrance (attached to load locks 12 and 14), a non-supercritical module coupled to the transfer module (Fig 3-32) and a transfer mechanism coupled to the transfer module which is configured to move the work piece between the entrance, and any other processing module coupled to it (Fig 3-28), with regard to claim 2-5 Chen et al discloses a two hand off stations (Fig 3-14 and 12) adapted in two load locks at the entrance of the transfer module, with regard to claim 6-7 Chen et al discloses the non supercritical module to be a semiconductor module of the type of an etch, PVD or CVD (Col 1 line 14-21), with regard to claim 8-10, Chen et al discloses the transfer mechanism to be a central robot (Fig 3-28) adapted in a circular configuration, with regard to claim 13 Chen et al discloses the robot arm to comprise an extendable arm and an end effector (Fig 3-28), with regard to claim 22 Chen et al discloses the transfer module to be vacuum capable (Fig 1-20). Chen et al does not disclose a supercritical module connected to the transfer module. Fujikawa et al discloses a module capable of doing supercritical processing (Col 1 line 9-14), with regards to claim 15 Fujikawa discloses a pressure vessel (Col 3 line 21), with regards

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to claim 16 Fujikawa discloses a work piece cavity (Fig 4-5) for holding a work piece during processing and ingress and egress for the work piece (Fig 2-14), with regards to claim 17 Fujikawa discloses placement of the work piece in the work piece cavity through the transfer mechanism (Col 7 line 25-29), with regards to claim 19 Fujikawa discloses a pressurizing means for the supercritical processing module (Fig 4-26 and Col 8 line 12-25) and with regards to claim 21 Fujikawa discloses sealing means (Fig 1B-9 and Col 5 line 44) for the entrance of the supercritical processing module. Therefore it would have been obvious to one having ordinary skill in the art to couple the supercritical module to the transfer module of Chen et al to combine supercritical processing step with other processing on a wafer without taking the wafer out of clean environment between steps.

With regard to claim 20 this pertains to an intended use well known in the art (See applicants specification Page 2 line 23-30) and does not structurally distinguish over Fujikawa.

Claims 23-24 pertain to intended use and do not structurally distinguish over Chen et al. Chen et al's apparatus however provides means for injecting inert gas like nitrogen which could allow the pressure in the transfer chamber to be slightly positive (Col 2 line 22-25).

With regard to claim 25, it is well known in the arts that controlling means are integral part of transfer mechanisms such as robots as is disclosed by Shirai (US Patent 6186722 - Fig 5).

With regard to claim 29, this claim cites all the limitations of claim 1 and repeats the limitations of the means of supercritical processing and non-supercritical processing. Chen et al (US Patent 6110232) discloses its process modules adapted for non-supercritical processing (Col 1 line 14-21) while Fujikawa et al (US Patent 5979306) discloses its module adapted for

supercritical processing (Col 1 line 9-15). Therefore this claim is rejected for the same reason as claim1.

Claim11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US Patent 6110232) in view of Fujikawa et al (US Patent 5979306) and further in view of White et al (US Patent 6235634). Chen et al does not disclose the transfer mechanism to comprise a track configuration. White et al discloses a robot on a track configuration (Fig 2 and Col 6 lines 30-59) Therefore it would have been obvious to one having ordinary skill in the art to replace the circular configured robot of Chen by track configured robot of White to get an unrestricted placement of processing modules along the track in an economically.

Claim14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US Patent 6110232) in view of Fujikawa et al (US Patent 5979306) and further in view of Hunter (US Patent 6244121). Chen et al does not disclose dual arm and end effector. Hunter discloses a robot having dual arm and dual end effector (Fig 5). Therefore it would have been obvious to one having ordinary skill in the art to replace the single arm robot of Chen by a dual arm robot of Hunter to increase the throughput.

Claim18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US Patent 6110232) in view of Fujikawa et al (US Patent 5979306) and further in view of Jevtic (US Patent 5928389). Chen et al does not disclose an antechamber coupling the transfer module and the supercritical process module. Jevtic discloses a combination of a process chamber and an additional robot adapted to be disposed between the transfer chamber connected to the load locks and one or more process chambers which could be the supercritical module (Fig 1 112 could act like the ante chamber robot and any one of the process modules around it could be a supercritical

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module). Therefore it would have been obvious to one having ordinary skill in the art to place a module with processing and transferring capabilities so as to be able to do any pre-processing needed before placing in supercritical module.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maydan et al (US Patent 5882165) in view of Fujikawa et al (US Patent 5979306). Maydan discloses a hand off station (Fig 1-14), several non-supercritical modules coupled to the hands off station, a transfer mechanism configured to move the work piece between the entrance and the modules coupled to it. Maydan et al does not disclose a supercritical module coupled to the hand off station.

Fujikawa et al discloses a module capable of doing supercritical processing (Col 1 line 9-14)

Therefore it would have been obvious to one having ordinary skill in the art to couple the supercritical module to the transfer module of Chen et al to combine supercritical processing step with other processing on a wafer without taking the wafer out of clean environment between steps.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1	US Patent	5908510	McCullough et al
2	US Patent	6149828	Vaartstra, Brian A.
3	US Patent	6067728	Farmer et al.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

April 1, 2002


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700